

State of New Jersey
NEW JERSEY DEPARTMENT OF TRANSPORTATION
1035 PARKWAY AVENUE
P.O. Box 600
TRENTON, NEW JERSEY 08625-0600

BRIDGE RE-EVALUATION SURVEY REPORT

**STRUCTURE NO. 0202-159
ROUTES US 1, 9 & 46 OVER JONES ROAD
BOROUGH OF FORT LEE
BERGEN COUNTY**

15TH CYCLE

JULY 15, 2008

**NOTE: This Bridge Re-evaluation Report
shall be filed immediately after the
14TH Cycle Inspection Report.**

Prepared By

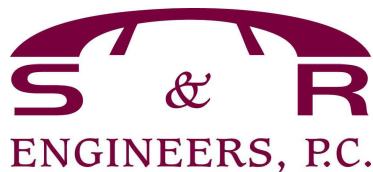


TABLE OF CONTENTS

	<u>Page No.</u>
1 Structural Data	15-1
2 Controlling Ratings	15-2
3 Conclusions and Recommendations	15-2
4 Structural Inventory & Appraisal and Pontis Sheets	15-4
5 Summary of Ratings	15-8
6 Drawings and Photographs	15-10
7 Field Notes	15-15
8. Priority Repair Letters and Memorandums	15-25

**N.J.D.O.T. - STRUCTURAL EVALUATION
RE-EVALUATION BRIDGE SURVEY REPORT
CYCLE NO. 15**

STRUCTURAL DATA:

Bridge No.:	0202-159	Year Built:	1930	Widened/Rehab:	1995
Route No.:	1 + 9	Length:	64'	Width:	73.0'
Mile Point:	64.580	Date of this Evaluation:	7/15/2008		
Name:	Routes US 1, 9 & 46 over Jones Road	By:	S & R Engineers, P.C.		
		Date of Previous Evaluation:	7/24/2006		
		By:	Abbington Associates, Inc.		
		Special Equipment Used:	None		
Structure Type:	Single Span, Simply Supported, Concrete Encased Multiple Steel Girders and Stringers	Date of Underwater Inspection:	N/A		
		By:	N/A		
		Scour Critical:	N/A		

OVERALL CONDITION: Satisfactory

WORK DONE: Large spalled/deteriorated area of south abutment corbel, east end, has been repaired with concrete ([Photo No. 15-04](#)).

Inspection Team Leader: Anil Mehta, P.E.

Initials: _____

Certifying Engineer: Chet Shah, P.E.

NJ P.E. Number: 24GE03943000

I certify that this report is an accurate description of the subject structure, to the extent determinable by visual inspection and testing performed.

Signature: _____

Date: _____

Original signed and
sealed

Seal

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

CONTROLLING RATINGS: (From 9th Cycle Report)

Computer Program Used: None – Hand Calculations.

Based on the Load Factor method of analysis, the following load ratings have been computed:

		<u>Truck Type (Tons)</u>			
Controlling Member	Rating Type	<u>HS-20</u> (36)	<u>3</u> (25)	<u>3S2</u> (40)	<u>3-3</u> (40)
Encased Steel Stringer S7 From west (W30 x 240)	Inventory Rating	27	23	35	45
	Operating Rating	45	38	59	75

The low Inventory ratings can be attributed to relatively high dead load carried by the concrete encased members and the low design capacity of the controlling stringer. Posting of this bridge for a restricted load limit is not warranted since all Operating ratings exceed the respective vehicle weights.

CONCLUSIONS & RECOMMENDATIONS:

The overall condition of the structure is satisfactory due to the condition of the superstructure and the substructure.

The deck is in poor condition due to several large areas of deteriorated/spalled concrete deck surface and uneven roadway surface from poor asphalt patching. The underside of deck exhibits a few areas of small and large incipient spalls ([Photo Nos. 15-05 through 15-08](#) and see attached Priority Repair Letters dated 7/26/2006 and 7/21/2008).

Since the previous inspection, the condition rating of the deck has been downgraded from fair to poor due to large areas of deck spalls that are poorly patched with asphalt (both southbound and northbound roadways). The condition rating of the substructure has been upgraded from fair to satisfactory due to the repair performed on south abutment corbel area.

Due to the poor condition of the deck, the bridge is structurally deficient. We therefore recommend that the bridge deck be replaced.

- | | |
|-----------------------------------------------------------|-----------|
| a. Concrete deck replacement
64 ft x 73 ft x \$145/SF* | \$677,440 |
|-----------------------------------------------------------|-----------|

*Deck replacement cost includes cost of removal, traffic control and safety.

- | | |
|----------------------------------------------|----------|
| b. Concrete parapets
2 x 64 ft x \$185/LF | \$23,680 |
|----------------------------------------------|----------|

- | | |
|-----------------------------------------------|----------|
| c. NJ barrier type Median
64 ft x \$261/LF | \$16,704 |
|-----------------------------------------------|----------|

- | | |
|-----------------------------------------------------------------|----------|
| d. Preformed elastic joint sealer/armoring
168 ft x \$151/LF | \$25,368 |
|-----------------------------------------------------------------|----------|

- | | |
|------------------|--|
| f. Approach work | |
|------------------|--|

Structure No.:	<u>0202-159</u>	Route:	<u>1 + 9</u>	Cycle No.:	<u>15</u>
Name:	<u>Routes US 1, 9 & 46 over Jones Road</u>			Insp. Date:	<u>07/15/2008</u>

LumpSum	\$76,000
---------	----------

- | | |
|-----------------------------------------------------------------------------------------------------------------------------|----------|
| g. Lower Jones Road by 3" to provide required minimum underclearance of 14'-6" (current vertical underclearance is 14'-3"). | \$70,000 |
|-----------------------------------------------------------------------------------------------------------------------------|----------|

Preliminary Engineering	\$90,000
Total	\$995,320
Say	\$996,000

In the interim, until the deck is replaced, we recommend that the following Emergency/Priority repairs should be made to retard further deterioration, preserve the structural integrity of the bridge, improve safety and extend its useful life:

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1. Post bridge for minimum vertical underclearance in accordance with NJDOT requirement for vertical clearance 14'-6". (Photo No. 15-01 and see attached Priority 1 Repair Letter dated July 30, 2004). | 1 Crew Day |
| 2. Remove all delaminated LMC overlay and deteriorated concrete from deck, clean any exposed reinforcing steel and repair with epoxy concrete (Photo Nos. 15-05, 15-06 and see attached Emergency/Priority 1 Repair Letter dated July 21, 2008 and NJDOT Memorandum dated July 22, 2008). | 2 Crew Days |
| 3. Remove all incipient spalls from underside of deck (Photo Nos. 15-07, 15-08 and see attached Priority 1 Repair Letter dated July 21, 2008 and NJDOT Memorandums dated July 22, 2008 and July 31, 2006). | 1 Crew Day |

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008
 Rated By: DTB Dated: 9/9/96 Checked By: PJM Dated: 9/11/96

SUMMARY OF RATINGS

The Load Factor ratings for bending and shear, computed in the 9th Cycle report in accordance with the FHWA directive dated November 1993 and AASHTO Manual for Condition Evaluation of Bridges, 1994, as modified by Section 1.41.2 of the New Jersey Department of Transportation Design Manual, Bridges and Structures, are as follows:

Computer Program Used: None – Hand Calculations

PERCENT (%) SECTION LOSSES: None

Allowable Stresses (Psi)

<u>Material</u>	<u>Compressive Strength f 'c</u>	<u>Yield</u>	<u>Inventory</u>	<u>Operating</u>
Concrete (Deck)	2,500	---	950	1,300
Reinforcing Steel	---	33,000	18,000	25,000
Structural Steel	---	30,000	16,500	22,500

Rating (Tons)

<u>Member</u>	<u>Truck Type (Tons)</u>		<u>Bending</u>		<u>Shear</u>	
			<u>Inventory</u>	<u>Operating</u>	<u>Inventory</u>	<u>Operating</u>
Encased Rolled Steel Stringer S7 (W30 x 240)*	Type HS-20	(36T)	27	45	109	182
	Type 3	(25T)	23	38	90	151
	Type 3S2	(40T)	35	59	142	236
	Type 3-3	(40T)	45	75	176	294
Encased Riveted Girder, G2	Type HS-20	(36T)	57	95	53	88
	Type 3	(25T)	63	105	52	87
	Type 3S2	(40T)	91	152	85	142
	Type 3-3	(40T)	119	198	87	145
Encased Rolled Steel Stringer S6	Type HS-20	(36T)	33	55	103	172
	Type 3	(25T)	27	45	86	144
	Type 3S2	(40T)	42	70	135	225
	Type 3-3	(40T)	52	87	168	280

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

		<u>Rating (Tons)</u>			
		<u>Bending</u>		<u>Shear</u>	
<u>Member</u>	<u>Truck Type (Tons)</u>	<u>Inventory</u>	<u>Operating</u>	<u>Inventory</u>	<u>Operating</u>
Encased Rolled Steel Stringer S5	Type HS-20 (36T)	31	51	87	146
	Type 3 (25T)	24	41	74	124
	Type 3S2 (40T)	39	66	117	195
	Type 3-3 (40T)	48	80	144	241
Encased Rolled Steel Stringer S4	Type HS-20 (36T)	72	121	124	208
	Type 3 (25T)	58	97	107	178
	Type 3S2 (40T)	93	156	163	272
	Type 3-3 (40T)	114	190	209	348

*** Controlling Ratings**

Notes:

1. Load Factor ratings are governed by maximum bending strength at midspan.

Structure No.:	0202-159	Route:	1 + 9	Cycle No.:	15
Name:	Routes US 1, 9 & 46 over Jones Road			Insp. Date:	07/15/2008



Photo No: 15-01

Location:	East elevation, looking West.
Description:	General view. Note: Structure fascia not posted for minimum vertical underclearance (typical west fascia).



Photo No: 15-02

Location:	North approach, northbound roadway, looking South.
Description:	General view.

Structure No.:	0202-159	Route:	1 + 9	Cycle No.:	15
Name:	Routes US 1, 9 & 46 over Jones Road			Insp. Date:	07/15/2008



Photo No: 15-03

Location:	Superstructure, looking North.
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Description:	General view.
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Photo No: 15-04

Location:	South abutment corbel, east end, looking South.
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Description:	Work Done: Large spalled and deteriorated area has been repaired with concrete.
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Structure No.:	0202-159	Route:	1 + 9	Cycle No.:	15
Name:	Routes US 1, 9 & 46 over Jones Road			Insp. Date:	07/15/2008



Photo No: 15-05

Location:	Southbound roadway, near south abutment, looking Northeast.
Description:	Loose area of delaminated LMC overlay and underlying concrete deck, repaired poorly with bituminous concrete.



Photo No: 15-06

Location:	Southbound roadway, near north abutment, looking Northeast.
Description:	Loose area of delaminated LMC overlay and underlying concrete deck, repaired poorly with bituminous concrete.

Structure No.:	0202-159	Route:	1 + 9	Cycle No.:	15
Name:	Routes US 1, 9 & 46 over Jones Road			Insp. Date:	07/15/2008



Photo No: 15-07

Location:	Underside of deck over eastbound lane of Jones Road, near south abutment, looking North.
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Description:	Large area of incipient spall between stringers S15 and S16.
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Photo No: 15-08

Location:	Underside of deck over Jones Road, south sidewalk, near south abutment, looking East.
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Description:	Large area of incipient spall between stringers S15 and S16.
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Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

NEW JERSEY DEPARTMENT OF TRANSPORTATION
STRUCTURAL EVALUATION
BRIDGE EVALUATION CHECK LIST

(FIELD NOTES)

Inspectors: Anthony Gilardi Name: Routes US 1, 9 & 46 over Jones Road
Crew Chief: Manoj Shah, P.E.
Temperature: 70°F Weather: Sunny & Clear
Special Equipment Used: None

RATINGS:

- N Not applicable
9 Excellent Condition
8 Very Good Condition – no problems noted.
7 Good Condition – some minor problems.
6 Satisfactory Condition – some minor deterioration of structural elements.
5 Fair Condition – minor section loss of primary structural elements.
4 Poor Condition – advance section loss of primary structural elements.
3 Serious Condition – seriously deteriorated primary structural elements.
2 Critical Condition – facility should be closed until repairs are made.
1 Imminent Failure Condition – facility closed. Study of repairs is feasible.
0 Failed Condition – facility is closed and beyond repair.

GPS COORDINATES			
@ Southwest corner			
N	40°	51' 30.60"	Lat.
W	73°	58' 42.96"	Long.

GENERAL

Type of Bridge: Single Span, Simply Supported, Concrete Encased Multiple Steel Girders and Stringers.

Year Built: 1930 Year of Widening / Major Repairs: 1995

No. of Lanes: On 4 Under 2

Vertical Clearances: Over Deck: Unlimited

Minimum Under: 14'-3" under west fascia at north curb.

Maximum Under (Item 10): 14'-5" under west fascia, 10' from south curb for eastbound lane of Jones Road.

Horizontal Underclearance: Total Horizontal Clearance: 20.7' curb-to-curb

Right 5.5' from south abutment to south curb.

Left N/A

Overall Physical Condition of Structure: Satisfactory due to the condition of superstructure and substructure.

Work Done: Large spalled/deteriorated area of south abutment corbel, east end, has been repaired with concrete (Photo No. 15-04).

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

DECK

SI&A Item 58 Condition Rating: 4

SPAN # SINGLE

RATING	COMPONENT	REMARKS
4	Wearing Surface / Top of Deck (LMC)	Southbound – 2 lanes: Deteriorated right lane with more than 60% of lane exhibiting unevenly and poorly asphalt patched areas/spalls (400 SF). Deteriorated/cracked / spalled deck right shoulder adjacent to asphalt patches (80 SF). Southbound – Left lane: Few asphalt patches (5 SF). Northbound – 2 lanes: Asphalt patched large spalls in both lanes, majority at both ends (100 SF). Areas around patched spalls have fractured wide cracks (20 LF) (Photo Nos. 15-05 and 15-06).
5	Underside of Deck (Concrete)	Large areas of incipient spall between stringer S15 and S16 above eastbound lane and south sidewalk (Photo Nos. 15-07 and 15-08).
6	Median (NJ Barrier)	
6	Curbs (Steel)	
6	Sidewalks / Safetywalks (Concrete)	
6	Parapets / Balustrades (Concrete)	
7	Railings / Fencing (W-Beam)	
6	Deck Joints / Filler Material (Comp. Jt. Seal)	
N	Drains/ Scuppers	None
N	Light Stands	None
7	Utilities	Overhead utility lines cross east to west near south end of deck.
5	Others (Headers)	Headers – scattered medium transverse cracks with light to moderate edge chipping along front and rear; both headers in SB lanes show areas of wide cracks with spalls and/or incipient spalls (5 SF) – some poorly patched spalls with asphalt.

**Additional
Remarks:**

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

APPROACHES

SI&A Item BA Rating: 6

SI&A Item 72 Rating: 7

APPROACH SOUTH

RATING	COMPONENT	REMARKS
6	Approach Pavement (Concrete with Asphalt overlay)	
N	Approach Shoulder	None
	Approach Roadway Vertical and Horizontal Alignment	Moderate horizontal curve to East, slight downgrade at bridge. Entrance ramp \approx 50' from bridge. Southbound exit ramp \approx 75'.
8	Guide Rail Condition (W-beam)	
6	Sidewalks (Earth/Gravel)	
6	Curbs (Concrete)	
7	Utilities NJDOT Lighting	
N	Approach Roadway Embankment	
7	Others (NJ Median Barrier) (Concrete)	

**Additional
Remarks:**

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

APPROACHES

SI&A Item BA Rating: 6

SI&A Item 72 Rating: 7

APPROACH NORTH

RATING	COMPONENT	REMARKS
6	Approach Pavement (Concrete with Asphalt overlay)	
N	Approach Shoulder	None
	Approach Roadway Vertical and Horizontal Alignment	Slight downgrade to north Tangent for 200' then moderate horizontal curve Exit ramp ≈ 100' from bridge at northeast No significant slowing of traffic
6	Guide Rail Condition (W-beam)	
6	Sidewalks (Earth – Gravel)	
6	Curbs (Concrete)	
7	Utilities	Light pole at northeast corner.
N	Approach Roadway Embankment	None
8	Others (NJ Median Barrier) (Concrete)	

**Additional
Remarks:**

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

SUPERSTRUCTURE

SI&A Item 59 Condition Rating: 6

SPAN # SINGLE

RATING	COMPONENT	REMARKS
6	Encased Steel Stringers & Girders (Numbered West to East) (G1, G2, S3 – S17, G18, G19)	
6	Diaphragms/ Cross Frames (Concrete)	
--	Bearings	Not visible.
	Deflection and Vibration	Noticeable under heavy loads.
8	Others (Utility Lines)	

**Additional
Remarks:**

FATIGUE DETAILS

Estimated percentage of Large trucks in ADT = 4%

Category	Detail Description and Location
A	Encased rolled steel girders and stringers.

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

SUBSTRUCTURE

SI&A Item 60 Condition Rating: 6

ABUTMENT SOUTH

RATING	COMPONENT	REMARKS
6	Breastwall (Concrete)	Heavy water stain with active water leakage below G18 and G19. Moderate water stain below S7. Active water leakage below G1. Work Done: Corbal at east end girder G19-G18 has been repaired with concrete. Water sewage still remains on east and west ends.
---	Backwall (Concrete)	Not visible.
6	Bridge Seat (Concrete)	Bridge seat top is not visible due to timber sheeting. East End: Medium to wide diagonal crack/incipient spall on front face below east fascia. Balance: Coated with epoxy waterproofing seal coat; mostly obscured by plywood.
6	Wingwalls/ Retaining Walls (Concrete)	
N	Embankment/ Slope Protection	None
N	Others/Footings/ Waterway Probing	N/A

**Additional
Remarks:**

ABUTMENT NORTH

RATING	COMPONENT	REMARKS
6	Breastwall (Concrete)	
---	Backwall (Concrete)	Not visible.
7	Bridge Seat (Concrete)	
7	Wingwalls/ Retaining Walls (Concrete)	
N	Embankment/ Slope Protection	None
N	Others/Footings/ Waterway Probing	N/A

**Additional
Remarks:**

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

HIGHWAY SAFETY

Coding of SI&A Item 36: 1000

1: Good

0: Not Good

N: Not Applicable

RATING		COMPONENT	REMARKS
1		Bridge Railing	
0	0	Transition to Bridge Railing	SE (entry): 12.5' double W-beam rail element; 7 posts at 3.1' spacing, steel spacers. NW (entry): Leading end in clear zone. Bridge railing extends 40' then substandard w-beam with steel spacers. NE (exit): 3 posts spaced at 3.1', balance at 6'-3"; timber spacers with 1 steel spacer adjacent to bridge; substandard steel spacer. SW (exit): Bridge railing extends in approach 135'.
	1	Curb / Sidewalk Terminations	Continuous
0		Approach Guide Rails	SE: Continuous; NE: Continuous SW: 25'+ long; NW – Bridge railing extends 40' then w-steel beam guide rail. Steel spacers at all approaches – substandard.
0		Approach Guide Rail End Terminals	SE: Continuous along entrance ramp – consider acceptable NE: Continuous SW: Non-breakaway cable stayed terminal – acceptable for exit end NW: BCT substandard (flare not possible due to gas station entrance)

DECK GEOMETRY

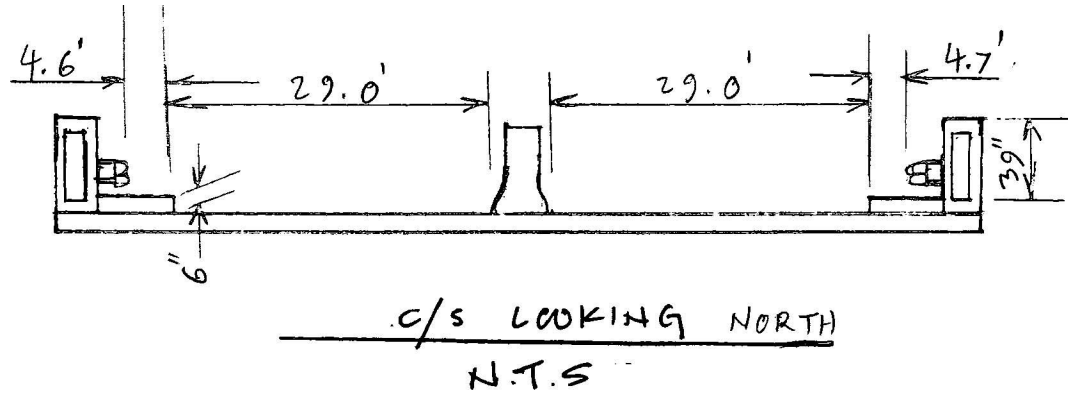
SI&A Item 68 Rating: 5

COMPONENT	REMARKS
Bridge Cross Section	Bridge roadway width is consistent with the approach roadway widths.
Adequacy of Lane / Shoulder Widths	Four lanes, two-way traffic, two lanes with right shoulders, each direction, divided. ADT = 47, 593 (Year 2008) (Table 2C) Curb to curb = 58.0'.
Vertical Clearance over Deck	Unlimited

*Posting for Load / Speed / Clearance Restrictions (Include a photo)	None. Minimum vertical underclearance 14'-3" and 14'-5" noted under west fascia (See Photo No. 15-01, underclearance sketch and attached Priority Repair Letter dated 7/30/2004).
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Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

DECK CROSS SECTION



Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

CLEARANCES

FEATURE ON STRUCTURE: US 1, 9 & 46 SI&A SHEET 1

*Minimum Vertical Clearance (SI&A item 10)	No restrictions.
Total Horizontal Clearances (SI&A item 47)	29.0' curb to median (each direction).
Minimum Vertical Underclearance (SI&A item 54)	14'-3" under west fascia at north curb.
Minimum Vertical Underclearance (incl. shoulders) (SI&A Item DJ)	14'-3" under west fascia at north curb.
Lateral Right (SI&A item 55)	5.5' from south abutment to south curb.
Lateral Left (SI&A Item 56)	N/A

FEATURE UNDER STRUCTURE: Jones Road SI&A SHEET 2

*Minimum Vertical Clearance (SI&A Item 10)	14'-5" under west fascia, 10' from south curb for eastbound lane of Jones Road.
Total Horizontal Clearance (SI&A Item 47)	20.7' curb-to-curb.
Minimum Vertical Underclearance (incl. shoulders) (SI&A Item DJ)	14'-3" under west fascia at north curb.

***Minimum clearance for a 10 foot width of the pavement or traveled part of the roadway where the clearance is greatest shall be coded in feet and inches.**

Structure No.: 0202-159 Route: 1 + 9 Cycle No.: 15
 Name: Routes US 1, 9 & 46 over Jones Road Insp. Date: 07/15/2008

CHAIN LINK FENCE

Coding of SI&A Item FN: N

Coding of SI&A Item FO: N

Coding of SI&A Item FP (in thousands): --

Warranted (Per Design Manual Section 23):		Yes/ No
If Yes: (#) Description:		
<u>Current Status of Fence & Sidewalk:</u>	<u>Left Side</u>	<u>Right Side</u>
a. Fence:	Yes/ No	Yes/ No
b. Sidewalk Width:	4.6 FT	4.7 FT
c. Total Height of fence above Curb/Sidewalk	N/A	N/A
d. Type of Fence: (per Design Manual Section 23)	N/A	N/A
Action Recommended: None, sidewalk exist; however, approaches lack sidewalks – no pedestrian access.		
Estimated Cost: N/A		